WHAT IS CLAIMED IS:

1. An injection mechanism of an injection molding machine using a linear motor as a driving source for driving an injection screw shaft in the axial direction, wherein

the linear motor comprises:

a movable section linked to the injection screw shaft and extending in the axial direction;

an outer frame; and

a fixed section fixedly attached to the outer frame and extending in the axial direction while facing the movable section, wherein

a plurality of the linear motors each constituted of the movable section, the outer frame and the fixed section are arranged to surround the screw shaft.

2. An injection mechanism of an injection molding machine according to claim 1, wherein

the movable section of each of the linear motors comprises a polygonal prism having a plurality of pairs of plane parallel to each other, and electrical elements of each of the linear motors are provided on the two planes parallel to each other, respectively; and

the fixed section of each of the linear motors is fixedly attached to the outer frame so that electrical elements of the fixed section face the electrical elements of the movable section of each of the linear motors, respectively.

3. An injection mechanism of an injection molding machine

according to claim 1 or 2, wherein the fixed section of each of the linear motors is detachably attached to the outer frame so that electrical elements of the fixed section face electrical elements of the movable section of each of the linear motors, respectively.

4. An injection mechanism of an injection molding machine according to claim 1 or 2, wherein a hole section is provided in the outer frame, the fixed section of each of the linear motors is constituted of a lid closing the hole section, and electrical elements of the fixed section of each of the linear motors are fixedly attached to an inside of the lid.

5. An injection mechanism of an injection molding machine according to claim 1, wherein one end of the screw shaft is attached to a moving plate constituting the injection molding machine such that it can rotate but cannot move linearly, and the movable section of each of the linear motors is fixed to the moving plate.

6. An injection mechanism of an injection molding machine according to claim 5, wherein the movable section of each of the linear motors is fixed to the moving plate through a load cell.

7. An injection mechanism of an injection molding machine according to claim 2, wherein the movable section of each of the linear motors is constituted of a prism having a rectangular cross section, and electrical elements of the linear motors are provided on four planes of the prism, respectively.

8. An injection mechanism of an injection molding machine

according to claim 1, wherein a cylinder for containing inside the injection screw shaft is attached to a front plate constituting the injection molding machine, the outer frame constituting the linear motor is fixedly attached to the front plate.

9. An injection mechanism of an injection molding machine according to claim 1, further comprising gap adjustment means for adjusting a gap between the outer frame and the fixed section, the outer frame and the fixed section constituting one linear motor.

10. An injection mechanism of an injection molding machine according to claim 1, wherein a linear guide for linearly moving the movable section is formed on one constituent member of the outer frame.

11. An injection mechanism of an injection molding machine according to claim 1, wherein a measuring shaft is linked to one end of the screw shaft, and the measuring shaft passes through a penetrating hole provided in a center of the movable section.